OIDIODENDRON SCYTALOIDES N. SP.

by W. GAMS* and B.E. SÖDERSTRÖM**

RÉSUMÉ. — Description d'une nouvelle espèce d'*Oidiodendron* : *O. scytaloides*, à chlamydospores pigmentées. Ce champignon a été isolé en Suède et en Hollande, sous les conifères et les peupliers, spécialement dans les couches minérales du sol. Il diffère de *O. chlamydosporicum* Morrall, par des conidies beaucoup plus courtes et des chlamydospores plus petites.

SUMMARY. — A new species of *Oidiodendron* : *O. scytaloides*, with pigmented chlamydospores is described. *O. scytaloides* is one of the commonest *Oidiodendron* species in soils of coniferous and oak forests in Sweden and the Netherlands, but especially in the mineral soils layers. It differs from *O. chlamydosporicum* Morrall by smaller chlamydospores and much shorter conidia.

The genus *Oidiodendron* Robak now contains 15 described anamorph-species (BARRON, 1962; LITVINOV, 1967; MORRALL, 1968; TOKUMASU, 1973; DOMSCH et al., 1980), some of which are not very sharply delimited. The teleomorph connections were reviewed by SIGLER and CARMICHAEL (1976). Rather frequently we encountered isolates which are difficult to classify and might represent new taxa. While hesitating to erect some further poorly defined species, we feel compelled to describe one of the commonest which can easily be recognized by its chlamydospores. This species was already included with its present name in the key by DOMSCH et al. (1980).

OIDIODENDRON SCYTALOIDES W. Gams & Söderström n. sp.

(Fig. 1, 2)

(= *Oidiodendron* sp. Tokumasu, *Trans. mycol. Soc. Japan* 14 : 253. 1973)

Coloniae lente crescentes, viridi-griseae, deinde obscure griseo-olivaceae, conidiis pulverulentae, modice elevatae, nonnumquam rugosae in medio; rever-

* Centraalbureau voor Schimmelcultures, Baarn, Netherlands.

** Department of Microbial Ecology, University of Lund, Lund, Sweden.

sum obscurius griseum ad atrum. Conidiophora plerumque ex hyphis submersis oriunda; stipites bene evoluti 50-85 µm longi, brunnei, breviores saepe hyalini, leves, in summo catenas conidiorum ramosas, numero variabiles, rectas vel modice undulatas proferentes; arthroconidia vulgo segmentis sterilibus alternata, cylindrica - guttuliformia - ellipsoidea, uno vel ambobus apicibus truncata, hyalina ad subhyalina, levia, plerumque 2.0-3.0(-4.0)× 1.0-2.0 µm. Chlamydosporae frequentes, terminales vel laterales, singulae vel breviter catenatae, saepe etiam intercalares et catenatae, ellipsoideae, brunneae, plerumque 3.0-4.0(-5.0) × 2.5-3.0 µm.

Typus CBS 922.73 vivus et exsiccatus, isolatus e terra piceeti in Suecia.

Colonies on cherry decoction or acidic malt extract agar reaching 0.4-0.8 cm diam. in 14 days at about 20°C, greenish olivaceous to greenish grey, later dark grey-olivaceous, powdery due to conidial masses, slightly raised, sometimes also slightly wrinkled in the centre; reverse darker grey to black. Conidiophores arising mostly from submerged hyphae (after some transfers also often from erect tufts of aerial hyphae); stipes, when well developed, 50-85 µm long, brown, (shorter ones often hyaline), smooth-walled, bearing irregular numbers

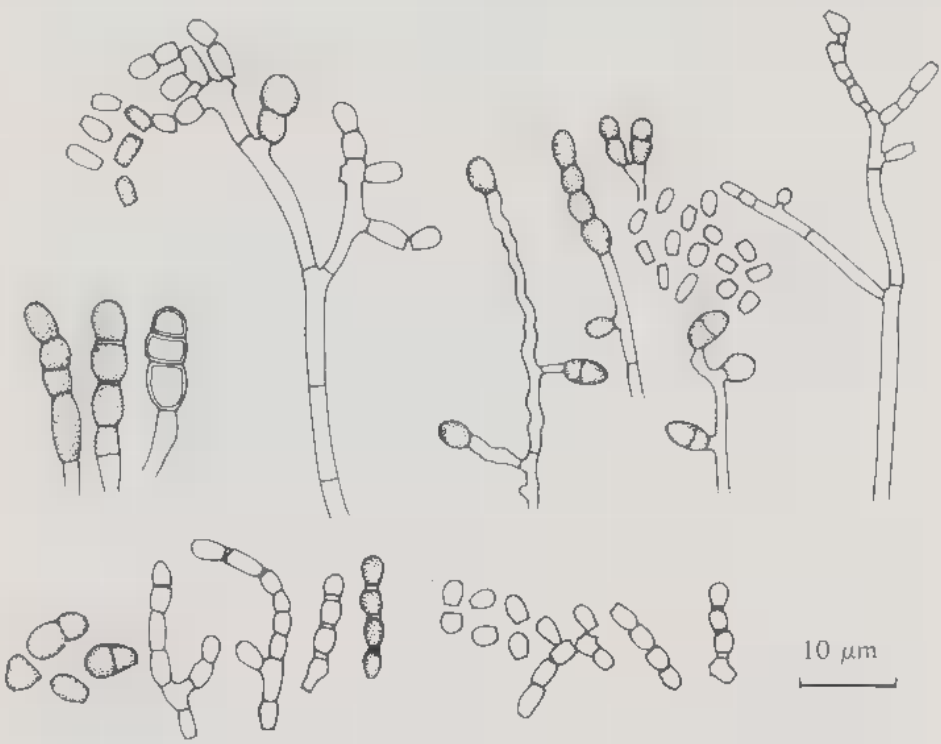

Fig. 1. – *Oidiodendron scytaloides*. Conidiophores, conidia and chlamydospores drawn from various isolates.

of branching conidial chains which are straight or somewhat undulate; arthroconidia often separated by sterile segments («alternate arthroconidia» of SIGLER & CARMICHAEL, 1976); conidia cylindrical - guttuliform - ellipsoidal, with one or both ends truncate, hyaline to subhyaline, smooth-walled, mostly 2.0-3.0(-4.0) × 1.0-2.0 µm. Chlamydospores commonly terminal or lateral, formed singly or in short compact chains, rather often also intercalary and in irregular chains, ellipsoidal, brown, mostly 3.0-4.0(5.0) × 2.5-3.0 µm.

Occurrence : *O. scytaloides* is one of the commonest *Oidiodendron* species in soils of coniferous and oak forests in Sweden and the Netherlands, but especially in the mineral soil layers.

Material examined :

Netherlands : CBS132.72, Meerdink Forest, humus layer, B.E. Söderström, 1970.

Sweden : All from 60-year-old *Picea abies* forest planted on a former beech forest, Kongalund, South Sweden : CBS 626.73 and 922.73 = ATCC 38210 (type isolate) from humus (A_{02}) horizon, CBS 923.73 from eluvial (A_2), CBS 924.73 and 925.73 from illuvial (B) layers, B.E. Söderström and E. Bååth, 1973.

Germany : CBS 443.81 and 584.81, from roots of dying *Abies alba*, G. Schüler, 1981.

DISCUSSION

The specific epithet was chosen to express the similarity with the genus *Scytalidium* Pesante (production of arthroconidia and pigmented chlamydospores). The only other known *Oidiodendron* species with chlamydospores is *O. chlamydosporicum* Morrall (1968), type strain CBS 403.69. The chlamydospores of this strain are mostly solitary or in pairs and initially mainly terminal, 4.0-7.5(-9.0) x 2.5-4.5(-6) µm, and the conidia are narrowly cylindrical to clavate, 4.0-6.0 x 1.0-2.0(-2.5) µm. In the description of *O. chlamydosporicum*, the chlamydospores are given as measuring 4-9 µm diam. and the conidia as 2.0-6.0 x 1.2-2.0 µm. *O. scytaloides* has smaller chlamydospores and much shorter conidia; but it is possible that MORRALL had based his diagnosis on both taxa, as he reports repeated isolations. *O. chlamydosporicum* in the strict sense has apparently not yet been found in Europe.

It is very likely that *O. scytaloides* is identical with *Oidiodendron* sp. described by TOKUMASU (1973) from soil in white birch forest, Sugadaira, Japan, which remained unnamed as that author hesitated about its delimitation from *O. chlamydosporicum*.

SÖDERSTRÖM and BÅÅTH (1978) reported it (as *Oidiodendron* sp. 1) to be most frequent in the mineral soil horizons.

Like other species of *Oidiodendron*, *O. scytaloides* grows best on cherry decoction (pH *c.* 4.5) or acidic malt extract agar (pH *c.* 6.0). In spite of these

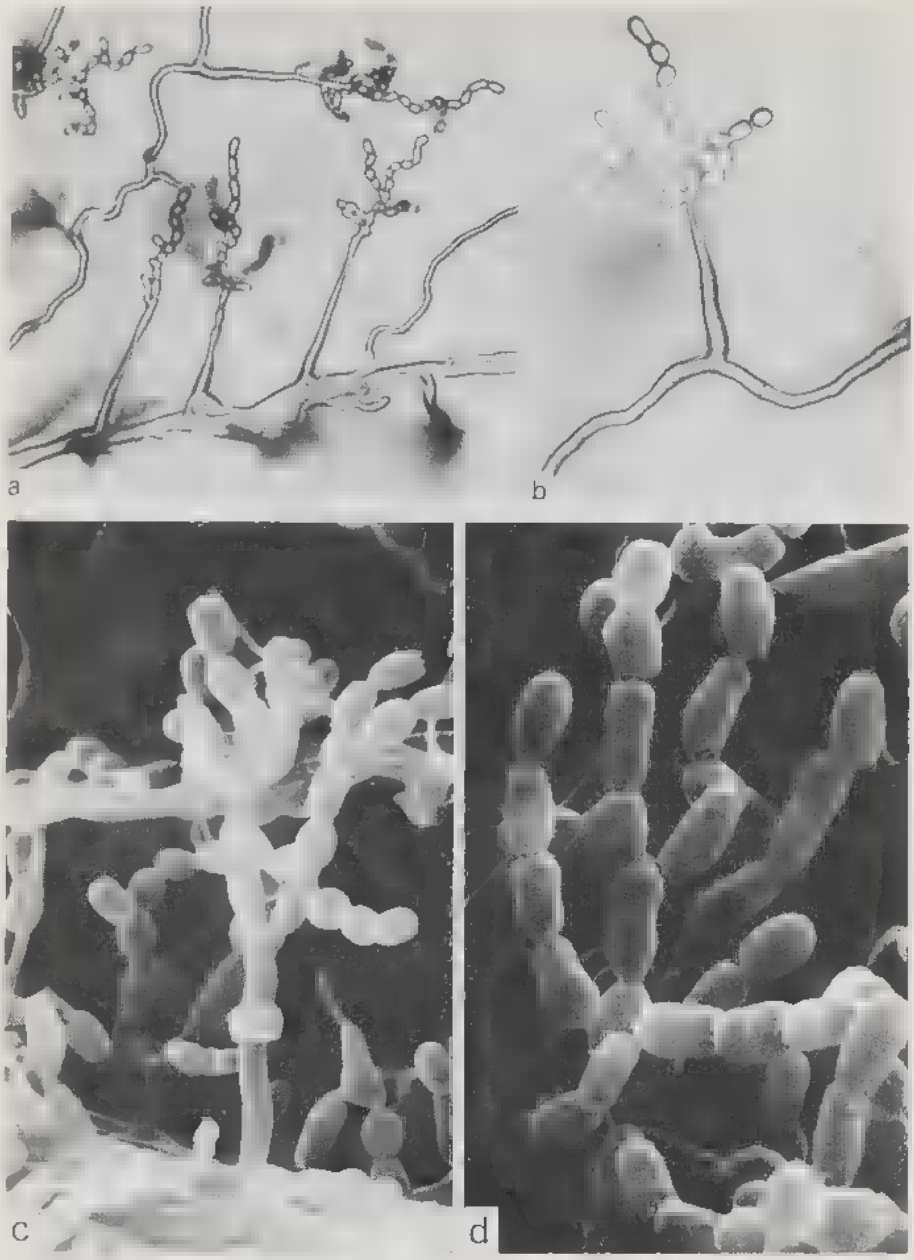

Fig. 2. — *Oidiodendron scytaloides*. a, b : Light micrographs of conidiophores grown in cover-slip culture (Riddell). x 825 and x 1500. c, d : Scanning electron micrographs of conidiophores and conidial chains, c. CBS 626.73, x 2280, d. CBS 925.73, x 3650.

acidic media, colonies tend to degenerate and to loose their initially rich sporulating capacity. Such subcultures then are dark grey to black, somewhat moist, often producing tufts of erect hyphae but with very moderate sporulation, often devoid of pigmented conidiophore stipes. Submerged repent hyphae may then disarticulate into subhyaline fragments, intermediate between chlamydospores and conidia.

REFERENCES

BARRON G.L., 1962 New species and new records of *Oidiodendron*. *Can. J. Bot.* 40 : 589-607.

DOMSCH K.H., GAMS W. & ANDERSON T.H., 1980 - Compendium of soil fungi. Academic Press, London, 864 + 405 pp.

LITVINOV M.A., 1967 – Opredelitel' mikroskopicheskikh pochvennykh gribov. Izdatel'stvo Nauka, Leningrad, 304 pp.

MORRALL R.A.A., 1968 – Two new species of *Oidiodendron*. *Can. J. Bot.* 46 : 203-206.

SIGLER L. & CARMICHAEL J.W., 1976 – Taxonomy of *Malbranchea* and some other Hyphomycetes with arthroconidia. *Mycotaxon* 4 : 349-488.

SÖDERSTRÖM B. & BAATH E., 1978 – Soil microfungi in three Swedish coniferous forests. *Holarctic Ecology* 1 : 62-72.

TOKUMASU S., 1973 – Notes on Japanese *Oidiodendron*. *Trans. Mycol. Soc. Jap.* 14 : 246-255.